

DATA PROCESSING

ON LINE... IN REAL TIME...



KEYDATA
CORPORATION

YOUR COMPUTER IN A KEYBOARD . . .



● The KEYDATA Station installed in your office looks like a typewriter, works like one, and requires no more space or operating skill. Yet, from this typewriter-like device you obtain all the data processing power of a large-scale computer system.

Your KEYDATA Station is tied by private telephone line directly into our computer. This direct connection is referred to as "on-line." When you press the keys, the computer *instantaneously* responds to your request. This immediate reaction is called "real-time."

The response to each KEYDATA Station is so fast that every KEYDATA customer in effect has his own computer. However, because many customers actually share one computer, each pays only a small fraction of the total system cost.

WHAT KEYDATA MEANS TO YOU . . .

KEYDATA presents, on an as-needed basis, the capabilities of a large-scale communications-oriented computer system, representing the most modern developments in electronic data processing.

● *Office routine is simplified and expedited.*

Eighty percent of the information on a typical invoice is automatically typed by the KEYDATA Station, under computer control, at speeds several times faster than an average typist's.

Completed invoices come from your KEYDATA Station in your office the instant your operator keys in the required information.

Exceptions are easily accommodated by allowing your operator to enter special prices, rates or comments as needed.

Invoices can be printed in warehouse location sequence.

The time and effort involved in preparing punched cards or paper tape are completely eliminated.

Information is captured at its origin. After one keying of basic information, the KEYDATA computer, remembering the contents of every invoice or other document it has previously prepared, is ready to produce, with absolutely no further effort on your part, statements, aged trial balances, stock status reports, commission reports, and any other report desired.

● *New heights in accuracy are achieved.*

Information automatically printed on invoices is supplied with computer accuracy.

Images of this information, stored within the computer, are used to prepare all subsequent documents or reports. No manual transcription errors are possible. Customer and item numbers are verified as they are keyed. Invalid numbers are detected and signaled to your KEYDATA Station operator *instantaneously*, before they are printed on the invoice and while the source document is still right before her.

- *Improved control over your business, so vital in today's competitive market, is easily obtainable.*

Each customer's credit position is automatically checked before an invoice is written, enabling management to take any necessary action at the first possible moment.

Inventory on-hand positions are checked and updated as each invoice is written. Out-of-stock items need not appear on invoices; automatic substitutions can be made. Management receives instantaneous notification of conditions such as stock replenishment required. Customer service goes up, inventory investment goes down.

Specific inquiries regarding customer credit, inventory availability or any other condition set up under computer control are *instantaneously* answered on your KEYDATA Station.

All pertinent information is in random-access storage ready to be used or changed by you *instantaneously*.

The computer's ability to arrange and analyze information quickly, accurately and inexpensively permits you to design reports that will provide all the information needed for the best analysis and control of your operation.

- *Security of confidential information is assured.*

Your records never leave your office since all manual work is performed there.

Access to your files stored in the computer is possible only through your own KEYDATA Station.

Selected information can be further protected by permitting access only when a confidential code number precedes inquiry.

- *Operational ease and flexibility result from the KEYDATA system's ability to switch instantaneously from one program to another.*

Invoicing can be interrupted to permit the immediate processing of an inquiry or entry of receipts to inventory.

With multiple KEYDATA Stations, different applications can be performed simultaneously or all Stations can be used for the same application.

- *Your ability to utilize advanced computer techniques is greatly enhanced.*

The same KEYDATA Station used to prepare invoices can, with proper programming, be used to enter data for an inventory simulation or an operations research project.

- *Engineering and scientific computations are also performed on-line in real-time.*

An extremely large central processor and fast arithmetic unit make the KEYDATA system ideally suited for such work.

Data or original Fortran statements are keyed directly into the computer from a KEYDATA Station.

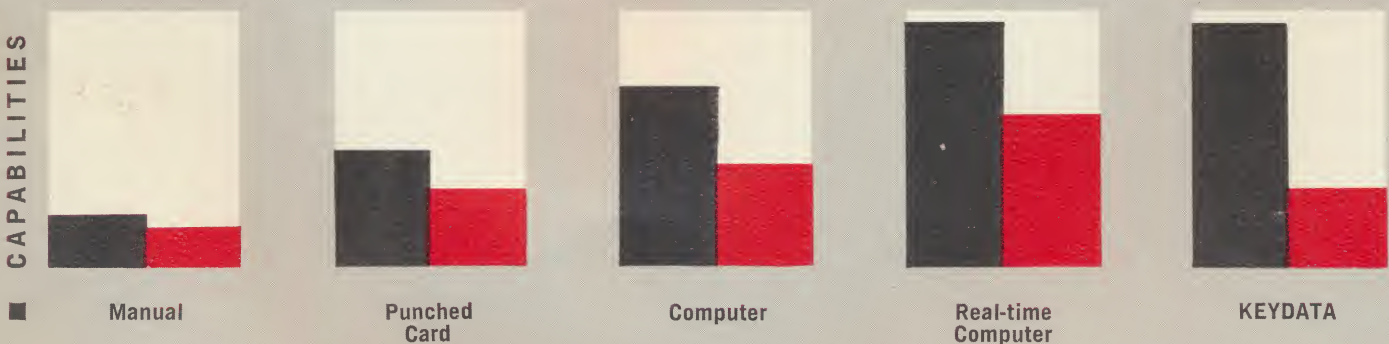
Fortran statements are checked for clerical errors and most statements compiled as they enter the system. This results in *instantaneous* detection of most clerical and programming errors and, therefore, in great convenience and economy of time.

Computation is performed in a background mode, time-sharing the system with other running programs. Results can be printed on-line on the KEYDATA Station or, if too lengthy or detailed, on a high-speed printer at the computer center and delivered to you by messenger.

- *The KEYDATA Station can operate as a super-desk calculator.*

A table of information, for example, in which each column is related in some mathematical manner to the other columns, can be programmed for and prepared on the Station. You merely enter the initial data, then the KEYDATA system *instantaneously* computes the relative values and prints them in their assigned positions.

CAPABILITIES



COSTS

INVOICE PREPARATION... ON LINE...IN REAL TIME

ONLY THESE ITEMS
ARE KEYED IN BY YOUR
OPERATOR — OUR COMPUTER
DOES THE REST

AUTOMATIC COMPUTER FUNCTIONS:

- VERIFY INPUT
- CHECK CUSTOMER CREDIT
- INVENTORY CHECKING & POSTING
- INVOICE NUMBERING
- PAGE NUMBERING
- PRICING
- EXTENDING
- DISCOUNTING
- TOTALING
- POSTING ACCOUNTS RECEIVABLE
- JOURNALIZING

TELEPHONE 617-848-9440

CASE SUPPLY CO.
125 ACADEMY AVENUE
BOSTON, MASS. 02116

CABLE ADDRESS DISCO12

SOLD TO: BAIRD MOTOR HOTEL
650 MAIN BLVD
WESTON, NEW YORK

304406 15 12-22-64 234552
CUSTOMER SLEN DATE INVOICE NO.

SHIP TO: SAME

SHIPPING INSTRUCTIONS: ORDER NUMBER: ORDER DATE: TERMS: 2/10 NET 30

ITEM NUMBER	QUANTITY	DESCRIPTION	UNIT	UNIT PRICE	AMOUNT
27421	3	SHEETS WHITE DOUBLE	DZ	27.90	83.70
27433	5	SHEETS WHITE TWIN	DZ	22.15	110.75
36552	10	PILLOW CASES WHITE	DZ		
A1180	1	ASH TRAYS GLASS	CR	18.50	18.50
B2201	20	BATH MATS GREEN	EA	1.75	35.00
TOTAL					247.95*
3% DISCOUNT					7.44-

PLEASE PAY THIS → \$ 240.51

THANK YOU FOR YOUR ORDER
PLEASE REFER TO OUR INVOICE NUMBER
WITH YOUR REMITTANCE

AUTOMATIC SIGNALS TO
YOUR OPERATOR:

KEYING ERROR

CODING ERROR

EXCEEDED CREDIT LIMIT

CASE SUPPLY CO. EXCEPTION NOTICE

BELOW MIN 12-22 B2201 BATH MATS GREEN EA
MESSAGE TYPE DATE CUST./STOCK NO. NAME

ROUTE TO:
☐ CREDIT MANAGER
☐ SALES DEPARTMENT
☐ OFFICE MANAGER
☐ REORDER DEPARTMENT

CASE SUPPLY CO. EXCEPTION NOTICE

INQ STOCK 12-22 A1180 ASH TRAYS GLASS CR
MESSAGE TYPE DATE CUST./STOCK NO. NAME

ROUTE TO:
☐ CREDIT MANAGER
☐ SALES DEPARTMENT
☐ OFFICE MANAGER
☐ REORDER DEPARTMENT

CASE SUPPLY CO. EXCEPTION NOTICE

CREDIT NOTE 12-22 304406 BAIRD MOTOR HOTEL
MESSAGE TYPE DATE CUST./STOCK NO. NAME

ROUTE TO:
☐ CREDIT MANAGER
☐ SALES DEPARTMENT
☐ OFFICE MANAGER
☐ REORDER DEPARTMENT

DISPOSITION:

VENDOR #	COST	SALES THIS MONTH	ON HAND	ON ORDER	MINIMUM	BELOW MIN.
1500	1621.62	11-15	234552	240.51		

CREDIT LIMIT CURRENT ACC. REC. AMT. LAST PAYMENT DATE THIS INVOICE NO. THIS INVOICE AMOUNT

KEYDATA
STATION

AUXILIARY
PRINTER

OTHER AUTOMATIC EXCEPTIONS NOTICES MAY INCLUDE:

- OUT-OF-STOCK NOTES
- BACK ORDER CONTROL DOCUMENTS
- CUSTOMER RECORD INQUIRIES
- ETC.

YOUR OFFICE

OFF-LINE REPORTS

CASE SUPPLY CO.
SLSM # 15 JOHNSON L.L.

CUSTOMER ANALYSIS

DEC. 31

PAGE NO. 1

CUST NO	CUSTOMER NAME	-----SALES THIS MONTH-----			-----SALES YEAR-TO-DATE-----			---GROSS PROFIT---	
		THIS YR	LAST YR	VARIANCE	THIS YR	LAST YR	VARIANCE	DOLLAR	PCT
226012	AMES-HINTON HOTEL	1,251	933	318	10,623	8,774	1,849	1,278	12.0
299307	ATWATER RESTAURANT	155	760	605-	4,120	5,650	1,530-	475	11.5
304150	BAILEY AVENUE REST	190	165	25	960	820	140	92	9.6
304406	BAIRD MOTOR HOTEL	241	212	29	2,918	3,344	426-	353	12.1

CASE SUPPLY CO.

STOCK STATUS REPORT

DEC. 31

PAGE NO. 1

STOCK NO	DESCRIPTION	PREV.BAL	RECEIPTS	SALES	ADJMTS	ONHAND	ORDERED	MINIMUM	AVAIL.	INA	ROR
A0220	GR ASH TRAYS ALUM	120		40		80		20	60		
A1180	GR ASH TRAYS GLASS	83	24	18	1-	88		20	68		
B1230	EA BATH MATS BR	460	144	200		404		150	254		
B2050	EA BATH MATS IV	160				160		150	10	*	

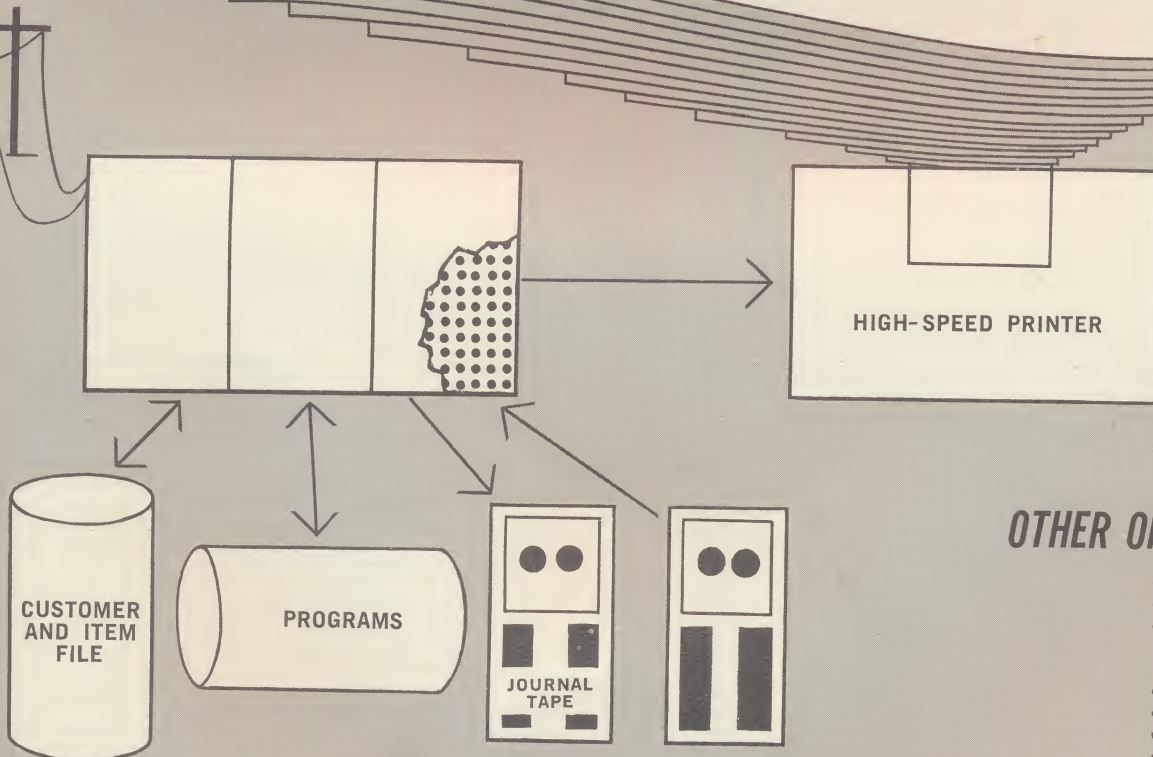
CASE SUPPLY CO.

ACCOUNTS RECEIVABLE AGED TRIAL BALANCE

DEC. 31

PAGE NO. 2

CUST NO	CUSTOMER NAME	INVOICE NUMBER DATE	TOTAL A/R AMT	CURRENT AMT	OVER 30 DAY AMT	OVER 60 DAY AMT	OVER 90 DAY AMT	LAST PAYT
304401	BAGLEY RESTAURANT	196542 9/17 198113 10/21 201224 10/23 233581 12/14	305.15 178.65 12.03 1255.42	1255.42	178.65 12.03	305.15		9/15
		TOTAL	1751.25*	1255.42*	190.68*	305.15*		
304406	BAIRD MOTOR HOTEL	190663 7/15 201787 10/28	322.60 154.33		154.33		322.60	11/05



OTHER OFF-LINE REPORTS:

- CUSTOMER STATEMENTS
- COMMISSION STATEMENTS
- SALES REGISTERS
- INVENTORY MOVEMENT
- PRODUCT SALES REPORTS
- TERRITORY REPORTS
- PRICE LISTS
- FILE MAINTENANCE REGISTER
- SPECIAL REPORTS ON REQUEST

KEYDATA COMPUTER CENTER

BEHIND

THE KEYDATA SYSTEM . . .

KNOWLEDGE, EXPERIENCE,

TEAM WORK

Founded in 1959, Charles W. Adams Associates, Inc., the parent organization of KEYDATA Corporation, offers programming and consulting services in all areas of electronic digital computer usage, including problem definition, systems and procedures design, equipment evaluation and selection, program preparation and documentation, programmer training, and executive indoctrination in computer concepts and techniques.

Since its inception Adams Associates has grown rapidly. Its technical staff has increased to almost fifty computer programmers and analysts with outstanding professional backgrounds; it occupies offices at 575 Technology Square in Cambridge as well as in Bedford; and it has performed a large number of widely diversified projects for clients in industry, government and education.

While many of these have involved conventional approaches to both business data processing and scientific computation, Adams Associates has engaged extensively in the development and implementation of advanced techniques for on-line time-shared computing, graphic man-machine communication, and real-time simulation. These are specialized areas in which the company is uniquely qualified and several of its staff members are well known for their accomplishments.

The relationship between parent and subsidiary is unusually close. Adams Associates not only performed the analysis and design of the previous and present KEYDATA on-line systems, but also developed three generations of executive routines used for computer time-sharing. The cumulative experience of producing KOP-1, KOP-2 and, most recently, KOP-3 (as these programs are called for KEYDATA On-line Processor) and the fact that the same programming team has worked on all three are of extreme significance to the effectiveness of the services offered by KEYDATA Corporation.

In July 1963 KEYDATA Corporation started the operation of its first on-line real-time data processing system. Consisting of eight KEYDATA Stations connected to a Digital Equipment Corporation PDP-4 computer at 68 Devonshire Street, Boston, this system was used for the acquisition and processing of vast amounts of data which presented all the basic problems inherent in time-sharing techniques. In solving these problems during the eighteen months this system was in operation, Adams Associates and KEYDATA Corporation contributed further to the state of the art of this new approach to data processing.

From this pilot operation, which proved the feasibility of providing time-shared use of a central computer to a wide variety of customers, the two companies derived additional knowledge and experience that have been reflected in the design and operation of the much larger and faster system now serving customers from the KEYDATA Computer Center at Technology Square.

The KEYDATA system . . . an on-line real-time configuration featuring complete parity checking and high-speed mass-storage devices.

- Digital Equipment Corporation PDP-6 computer capable of asynchronous operation and processing more than 300,000 instructions per second
- 49,152 36-bit words of core storage
- 6.3-million-character drum with transfer rate of 1.5 million characters per second
- 33-million-character disc files
- industry-compatible tapes with transfer rates up to 90,000 characters per second.



TOUCHE, ROSS, BAILEY & SMART

80 PINE STREET
NEW YORK, 10005
JANUARY 15, 1965

MR. CHARLES W. ADAMS, PRESIDENT
KEYDATA CORPORATION
575 TECHNOLOGY SQUARE
CAMBRIDGE, MASSACHUSETTS

DEAR MR. ADAMS:

AT YOUR REQUEST WE HAVE MADE A REVIEW OF THE KEYDATA ORGANIZATION AND SYSTEM, AS DEFINED IN YOUR DOCUMENT NO. KD 3, DATED DECEMBER 29, 1964. THIS LETTER SUMMARIZES OUR FINDINGS; ACCOMPANYING IT IS A REPORT CONTAINING DETAILED COMMENTS.

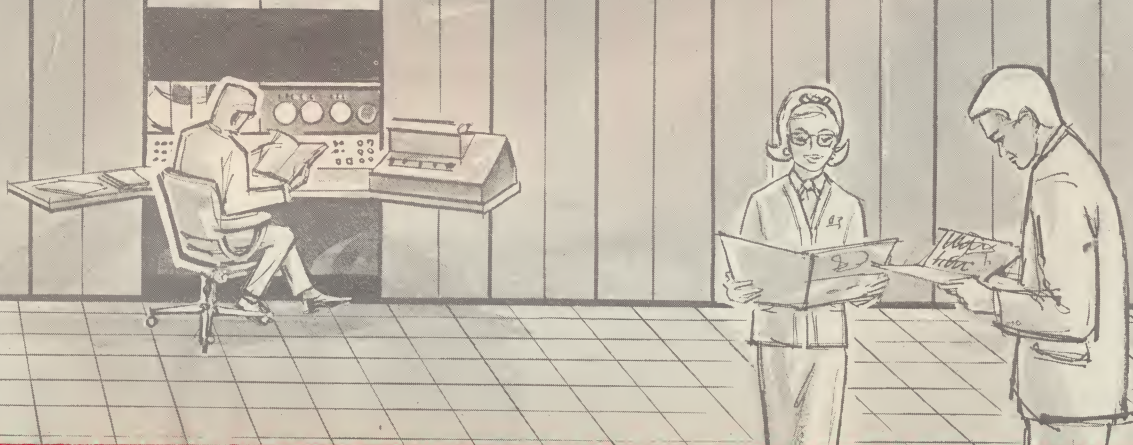
OUR REVIEW COMPRISED A COMPLETE SYSTEMS ANALYSIS AND INCLUDED AN EVALUATION OF THE FOLLOWING REQUIREMENTS WHICH ARE BOTH UNIQUE AND ESSENTIAL TO AN ON-LINE REAL-TIME DATA PROCESSING SYSTEM WHICH IS TO BE TIME-SHARED BY MULTIPLE CUSTOMERS:

1. THE EQUIPMENT USED MUST HAVE THE CAPABILITY OF HANDLING TRANSACTIONS ON-LINE AND IN REAL-TIME.
2. THE PROGRAMMING MUST BE DONE BY PERSONNEL WHO ARE HIGHLY EXPERIENCED AND QUALIFIED IN TIME-SHARED COMPUTING TECHNOLOGY.
3. MAXIMUM SECURITY MUST BE PROVIDED FOR INDIVIDUAL CUSTOMER'S PROGRAMS AND INFORMATION.
4. PROCEDURES MUST INCLUDE PROTECTION OF ALL INFORMATION IN THE SYSTEM IN THE EVENT OF EQUIPMENT MALFUNCTION OR HUMAN ERROR.

IN OUR OPINION THE KEYDATA ORGANIZATION AND SYSTEM, AS DEFINED, MET ALL OF THESE REQUIREMENTS AND THE SYSTEM IS AN EXCELLENT EXAMPLE OF CONTROLLED DATA PROCESSING. ALL ASPECTS OF THE SYSTEM HAVE BEEN WELL DESIGNED, REFLECTING THE PREVIOUS EXPERIENCE AND CAPABILITIES OF YOUR PERSONNEL IN THE PROGRAMMING AND OPERATION OF REAL-TIME SYSTEMS AS WELL AS THE SOUNDNESS OF THE APPROACH YOU HAVE TAKEN. WHEN COUPLED WITH A CUSTOMER'S NORMAL INTERNAL CONTROL PROCEDURES, THE SYSTEM PROVIDES AN OUTSTANDING DEGREE OF CONTROL OVER BOTH THE ACCOUNTING FUNCTIONS AND THE OPERATING ELEMENTS OF A BUSINESS. THE KEYDATA SYSTEM MAKES A PRACTICAL AND EFFECTIVE TIME-SHARED MANAGEMENT INFORMATION SYSTEM NOW AVAILABLE TO THE GENERAL BUSINESS COMMUNITY.

VERY TRULY YOURS,

Touche, Ross, Bailey & Smart
TOUCHE, ROSS, BAILEY & SMART



**Data processing services ...
on-line in real-time**

To the business user — all the advantages, *and more*, of an in-house random-access computer.

To the scientific user — all the computing power he needs, when he needs it, where he needs it.



KEYDATA
CORPORATION

575 TECHNOLOGY SQUARE · CAMBRIDGE · MASSACHUSETTS 02139 ♦ (617) 491-6565